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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,982	02/05/2004	Yoshio Tsukamoto	0140-4222	7145
27123	7590	07/21/2008		
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			EXAMINER FUJITA, KATRINA R	
			ART UNIT	PAPER NUMBER
			2624	
			NOTIFICATION DATE	DELIVERY MODE
			07/21/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/773,982	<b>Applicant(s)</b> TSUKAMOTO ET AL.	
	<b>Examiner</b> KATRINA FUJITA	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 12, 2008 has been entered.

### ***Response to Amendment***

2. This Office Action is responsive to Applicant's remarks received on March 12, 2008. Claims 1, 2, 4, 5 and 8 remain pending.

### ***Specification***

3. The previous specification objections have been withdrawn in light of Applicant's amendment.

### ***Claim Objections***

4. The previous claim objections have been withdrawn in light of Applicant's amendment.

5. The following is a quotation of 37 CFR 1.75(a):

The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

6. Claim 1 is objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

Claim 1 lacks antecedent basis for "the collection of adjacent disagreeing pixels" in line 5 of the page labeled 5. The following will be assumed for examination purposes: -- ~~the~~ a collection of adjacent disagreeing pixels --.

Claim 1 requires "the areas" in line 5 of the page labeled 5. It is unclear whether this is intended to be the same as or different from the "areas" in the last line of page 4, the "areas" of line 3 of page 5, or the "areas" in line 4 of page 5. The examiner will be assuming that "the areas" is referring to "when the portions have areas" in line 4 of page 5 for examination purposes.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Masuda et al. (US 4,685,139), Ohnishi (US 4,975,971), and Fujita (US 6,535,621).

Regarding **claim 1**, Masuda discloses a system and method for detection of printing defects ("inspecting device for print for detecting a defect occurred on the printed sheet" at col. 1, line 6) comprising:

determining a threshold of lowest stained density (figure 11B, x-axis at voltage = 0, as pixel densities above the reference densities are candidates for stains) near a level of lowest printed density for inspection of stained parts (the x-axis corresponds to the reference densities),

determining a threshold of highest blurred density (figure 11A, x-axis at voltage = 0, as pixel densities below the reference densities are candidates for blurs) near a level

of highest printed density for inspection of blurred parts (the x-axis corresponds to the reference densities),

reading multi valued data of reference of each color from a printed paper (“inspecting device for a print which is capable of accurately detecting the printing defects of yellow, magenta, cyan and black inks in a color print” at col. 2, line 38; figure 2, numeral 8) so that multi valued images of reference can be reproduced in a memory from the multi level data of reference (“the reference information is stored in the memory 15” at col. 8, line 54),

reading multi valued data of inspection of each of colors from a printed paper which is fed when inspecting (“In the inspection mode, the image information of the print pattern of the printed sheet which is sequentially printed is delivered” at col. 8, line 56) so that multi valued images of inspection can be reproduced in a memory from the multi valued data of inspection; and

comparing the multi level images of inspection with the multi level images of reference for inspection (figures 10A and 10B) of stained parts and blurred parts (“printing defect such as dripped water or oil” at col. 9, line 36; “stains occur as a printing defect” at col. 9, line 40)

predetermining areas for decision of stained parts or blurred parts (figures 11A and 11B, above upper threshold lines and below lower threshold lines); and

recognizing whether the multi valued images of inspection include portions disagreeing with the images of reference or not where the portions are positioned (figures 11A and 11B show the differential signals and how they correspond to the pixel

Art Unit: 2624

locations, i.e. axis labeled "pixel") and deciding on stained or blurred parts when the portions have areas exceeding the areas for decision of stained parts or blurred parts (figure 8, error signals ER1 and ER2), the areas comprising a collection of adjacent disagreeing pixels (as seen in figures 11A and 11B, the disagreeing pixels that generate the positive or negative differential signals are adjacent to each other as indicated by their pixel locations given by the pixel axis);

predetermining a limit of minus of differential density (figure 11B, upper "Threshold Level") independently of the threshold of lowest stained density for inspection of shortage of printed density (the voltage = 0 level does not affect the threshold level) at every pixel, the limit of minus of differential density being disposed of above the threshold of lowest stained density (as seen in figure 11B, the upper "Threshold Level" is above the voltage = 0 x-axis);

predetermining a limit of plus differential density (figure 11A, lower "Threshold Level") independently of the limit of highest blurred density for inspection of excess of printed density for inspection of blurred parts (the voltage = 0 level does not affect the threshold level) at every pixel, the limit of plus of differential density being disposed below the threshold of highest blurred density (as seen in figure 11A, the lower "Threshold Level" is below the voltage = 0 x-axis);

comparing the multi valued data of inspection with the multi data of reference at every pixel for inspection of shortage or excess of printed density for recognition of difference between the multi valued data of reference and the multi valued data of

inspection (figures 11A, 11B, differential signals; a positive or negative voltage corresponds to a potential excess or potential shortage of density),

predetermining areas for decision of shortage or excess of printed density (any pixels with densities that do not correspond to the reference pixels' densities),

deciding on shortage or excess of printed density when the difference exceeds the limit of minus differential density or plus differential density by portions having areas which exceed the areas for decision of shortage or excess of printed density (figures 11A, 11B); and

executing the inspection and decision of stained parts and blurred parts and the inspection and decision of shortage and excess of printed density simultaneously (both processes are performed within figure 8, numeral 101 corresponding to figures 11A and 11B, which indicate presence of either defect concurrently).

Masuda does not teach predetermining the limit of lowest stained density and the limit of highest blurred density and converting the multi data of reference and inspection into monochrome data of reference and inspection using the thresholds of lowest stained density and highest blurred density.

Ohnishi discloses a system and method in the same field of endeavor of print defect detection ("method and apparatus for detecting a defect on a surface of a to-be-checked sheet" at col. 1, line 16) where multi level data of reference and inspection are converted into monochrome data of reference and inspection (figure 1, numerals 7 and 13), and wherein the threshold levels of the inspected images are predetermined by an



operator (“threshold levels are respectively set in binarization circuits 7 and 13 by the keying-in operation” at col. 4, line 62).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the processing circuit and error judging method to predetermine the thresholds of lowest stained density and highest blurred density of Masuda using the data conversion and thresholding taught by Ohnishi as described above, to overcome unreliability “when a large number of types of sheet materials are to be subjected to defect detection” (Ohnishi at col. 2, line 1).

The Masuda and Ohnishi combination does not disclose recognizing what areas the portions disagreeing have.

Fujita discloses a method of inspecting a printed paper on which images are printed repeatedly (“method for use in inspection of defects on a plain material roll (or web) based on an image data” at col. 1, line 12) comprising recognizing whether the monochrome images of inspection (“digitizing into binary values” at col. 10, line 29) include portions disagreeing (“defective feature” at col. 12, line 33) with the data of reference and what areas the portions have (“an area...of various defective pixels constituting one defect” at col. 12, line 40).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the area calculation of Fujita in the error judging circuit of the Masuda and Ohnishi combination to “obtain an accurate defect information” (Fujita at col. 2, line 52) and thereby signal a printing alarm only when the flaws are significant.

Regarding **claim 2**, Masuda discloses a system and method comprising partitioning images of reference and images of inspection into parts to compare the images of inspection with the images of reference at every part ("entire print pattern by a line sensor such as a CCD... along scanning lines" at col. 3, line 52; figure 18, scanning lines).

Regarding **claim 4**, Masuda discloses a system and method further comprising alarm means ("alarm means such as a display unit, a marking unit or a rejecting unit" at col. 9, line 2, which is equivalent to applicant's disclosed alarm) for generating an alarm of stained parts or blurred parts when finding stained parts or blurred parts (figure 7, numeral 13; "When the judging circuit judges the presence of the defect, an error signal is transferred to the CPU board 17, which thus operates alarm means" at col. 8, line 68).

Regarding **claim 5**, Masuda discloses a method further comprising the step of detecting positional variations of the printed paper at every page when the printed paper is fed (figure 19), to compensate for the positional variations in the images reproduced in the memory ("displacement of synchronization of the print patterns of a plurality of sheets of the next set is corrected" at col. 14, line 4).

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Masuda, Ohnishi, and Fujita as applied to claim 1 above, and further in view of Juang (US 5,999,636).

The Masuda, Ohnishi and Fujita combination teaches the elements of claim 1 as described in the 103 rejection above.

The combination does not teach generating an alarm of shortage or excess of printed density when finding out that shortage or excess of printed density.

Juang discloses a system and method comprising generating an alarm (figure 1, numeral 7) of shortage or excess of printed density when finding out that shortage or excess of printed density (figure 3; "flaw grade values are compared to the proper threshold values, which are user specified, to obtain the final accept or reject decision" at col. 3, line 58).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the error judging circuit of Masuda, Ohnishi and Fujita using the flaw grading taught by Juang as described above, to allow for some flexibility in detection of density defects.

### ***Response to Arguments***

Summary of Remarks (@ response page labeled 10): The references do not teach or suggest "the limit (c) of minus of differential density is disposed above the threshold (a) of lowest stained density".

Examiner's Response: The Examiner has pointed to figure 11B in the Masuda reference as support for this limitation as shown in the above rejection of claim 1.

Summary of Remarks (@ response page labeled 10): The references do not teach or suggest "the limit (d), plus of differential density is disposed below the threshold (b) of highest blurred density".

Examiner's Response: The Examiner has pointed to figure 11A in the Masuda reference as support for this limitation as shown in the above rejection of claim 1.

Summary of Remarks (@ response page labeled 10): The references do not teach or suggest "the predetermined areas for decision comprise the collection of adjacent disagreeing pixels".

Examiner's Response: As shown in the rejection of claim 1 above, the signal areas exceeding the voltage difference in figures 11A and 11B comprise adjacent pixels that disagree with the reference signal.

### ***Conclusion***

Art Unit: 2624

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATRINA FUJITA whose telephone number is (571)270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katrina Fujita/  
Examiner, Art Unit 2624

/Vikkram Bali/  
Supervisory Patent Examiner, Art Unit 2624